

NEWS  NASA

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

TELS. WO 2-4155
WO 3-6925

FOR RELEASE: UPON DELIVERY
Wednesday
July 28, 1965

Address
by
James E. Webb, Administrator
National Aeronautics and Space Administration

National Governors' Conference
Minneapolis, Minnesota
July 28, 1965

DECISION-MAKING AND STATISTICAL STANDARDS

Most of the important decision-makers of today--
senior officials in government, industry and the university
world--were relatively young men during World War II, and
hence they have witnessed the rapid transformation of the
American way of life within their adulthood. Between 1940
and 1964 the population in the United States increased

about 45 percent from about 132 million to about 190 million, while national income increased about 535 percent from about \$80 billion to about \$510 billion (see Table 1). This remarkable economic growth has raised living standards sharply throughout the country. It has required a change in approach to national economic policy which places far more emphasis on fact-gathering and careful analysis.

Many forces have been behind the Nation's progress throughout these postwar years, but one underlying factor has been a dramatic upsurge in the aspirations of citizens.

Higher aspirations have been a driving force in the past, but they will be even more of a driving force for the future. The American people are demanding more job opportunities, better education, better health care, better recreation opportunities, and many other improvements. I need not remind this distinguished audience of the tremendous pressures for achievement and improvement at every

- 2a -

TABLE 1

Selected U.S. Data on Population,
Gross National Product, and National Income

	<u>1929</u>	<u>1935</u>	<u>1940</u>	<u>1964</u>
Population (millions)	122	127	132	190 (January)
G N P (billions)	\$104.4	72.5	100.6	622.6
National Income (billions)	\$ 87.8	57.1	81.6	510.1

Sources: Statistical Abstract of the United States, and
Survey of Current Business.

level of government, or of the difficulties in understanding even the basic facts of the existing situation or planning for progress. Nor need I remind any governor of the economic advantages to his state of having a healthier and better educated labor force.

In the mid-1960's, America continues to face powerful and relentless challenges from without. As President Johnson has indicated, these must and will be met. In agencies like NASA, the momentum of scientific and technological advance provides a new element of national power that vitally affects the balance between nations--emphasizing a technological balance while we still struggle with the dollar, or trade or military balance.

Thus the dominant facts facing state and local government officials as well as federal officials today are the existence of new opportunities and new conditions as well as new problems for all citizens, and a determination by the people to make further progress.

Opportunities for new levels of economic and social achievement are made possible by five conditions which are more favorable today than at any time in the past:

1. American science and technology have the competence and versatility to attack almost any problem, from the "better mousetrap" to the global weather satellite system to the "manned lunar landing" as a fully engineered system.

2. Satisfactory cooperative relationships have been worked out between governmental entities and the industrial and university sectors for financing, managing and carrying out research and development.

3. The Nation has sufficient resources to provide better education for all, better health care, better recreational opportunities and better environmental services and facilities which can cause industry and commerce to flourish.

4. Equality of opportunity and individual advancement on merit have reached a stage in this country beyond that achieved in all recorded history, and this has pro-

vided incentives toward excellence that are needed for future national achievement.

5. Modern information technology--computers and other automatic data processing (ADP) equipment--permits vastly more sophisticated use of factual data in analysis, planning and management fuctions. The collection, display, evaluation, storage, retrieval and managerial and research use of information now incorporate new concepts of statistical sampling, simulation, operations research and sensitivity analysis. In permitting governmental units and private organizations to characterize problems or segments of problems in quantitative terms and to make valid comparisons, this new information technology provides a much firmer factual basis on which to meet unexpected developments and plan for the future.

NASA's data tracking network provides a good example of the use of this new information technology. Computers linked with radar installations tell NASA project managers

where space capsules are and where they will be, and hence permit them to make real-time "go or no go" decisions which would not otherwise be possible. Simulation models and computer applications help scientists and engineers to meet emergencies /to develop improved configurations for new aircraft or space vehicles. Large engineering projects and construction projects are monitored by sophisticated PERT networks which may well have application to large projects at the state level. NASA's financial and procurement records have been put on computers which facilitate timely reporting and research on the character and impact of these activities.

Governor Bellmon has asked me to relate some of NASA's experience to his interest in statistical standarization at the state level.

Let me begin by saying that the formula for attaining advancing levels of economic and social achievement is not new. For a long time we have known that we must set our sights high, that we must analyze the facts which

characterize the present and projected situations, and that we must have hard-driving leadership and initiative. These factors apply at the state and local government levels and at the federal level. Leaders at all levels must provide well thought out, factually based analyses of needs. Legislators must pass judgment on these and authorize and appropriate funds. Carefully selected administrators must push forward to execute the projects which make up the programs, and devise adequate feedback for continuous improvements of both substance and administration. Also, in today's mixed or cooperative system, private industry must be brought in to give its best efforts.

President Johnson in a speech in 1964, at the University of Michigan, summarized our challenge in these words:

...in your time we have the opportunity to move not only toward the rich society and the powerful society, but upward to the Great

Society. The Great Society rests on abundance and liberty for all. It demands an end to poverty and racial injustice.

His messages to Congress have spelled out a number of recommended new programs. In this context, U.S. Budget Director Charles L. Schultze recently remarked:

New programs initiated to carry out the objectives of the Great Society must be solidly grounded in factual information. The national effort to raise educational levels, to increase employment, to wage war against poverty and crime, to improve transportation and housing facilities--naming only some of our objectives--requires data not now available. It also requires to a much greater extent than ever before, data on a state or local area basis. The federal government and the states must work together to ensure the accuracy and comparability of the statistics underlying their mutual efforts.

The greatest single weakness in this regard is the absence of a common body of agreed statistical categories and concepts utilized to provide data applicable to needs at the national, state, local and regional levels. Decisions with regard to subnational economies have been generally poor, inadequate, or ineffectual, and past efforts have not produced a framework and system of data collection for the field of regional and local economies comparable to that which has proved valuable at the national level. The absence of agreed statistical concepts and their use to acquire adequate, comparable statistics at the state and local levels has often made it difficult to apply the full force of university researchers and public and private administrators to the solution of state and local problems.

Staff officers to the governors and regional researchers frequently find that there are incompatibilities in available data on counties or cities within a state. Moreover, data at the state and substate level available

for one state are often not available for others. Further, even when state and substate data are available for two or more states, the categories are often defined differently and are not comparable.

This situation arises in part from the dubious parenthood of some of these statistics and from wide differences in the administrative machinery for handling statistical data among the various states. The difficulties are compounded by the big differences in the interest shown in statistical data and analysis among agencies within a particular state and among the states.

These statistical and use problems and their implications for decision-making were brought forcefully to my attention while I was Director of the U.S. Bureau of the Budget in the immediate post-World War II period. It was there that I became deeply interested in the Office of Statistical Standards and its work. Aggregative statistics available in Washington at that time were

generally useful as national totals, but they often concealed rather than revealed the postwar problems in the states and regions. The fact that certain regions were adversely affected by decisions not intended to have that result and others were not realizing their economic growth potential was due not only to the lack of an adequate statistical base and a rational means for identifying needs and feasible approaches, but also to a failure for university researchers, business leaders and state officials to work together toward common understandings of public problems and innovative solutions at the state and local levels. There was a tendency for these inadequacies to feed on each other and to adversely affect Congressional efforts to establish the needed policies and programs.

The appearance of the subject of statistical standardization on your annual conference agenda means, I very much hope, that the governors of the fifty states are mapping a concerted attack on it.

From the standpoint of a person outside state government, it is very difficult to separate the need for standardizing certain basic statistics within states, i.e., among subdivision of the state, from the problems of standardization among the states and between the state and the federal government. It would appear that these are but different aspects of the same problem and must be approached concurrently if the full value is to be realized.

To thoughtful students of government, it is clear that statistical standardization is not to be sought as an end in itself, but rather as a means of improved decision-making by governmental officials in the public sector and by private organizations as they help form and react to public policies. But it is far more than this. It is the means by which the creativity and research capabilities of university researchers, those who connect theory with practice, can be brought to bear on public

problems at the state levels. Our Chairman today, Oklahoma's Governor Bellmon, has demonstrated this very effectively.

In practical terms, there has been a steady growth in demands for government to provide facilities and services at the state and local level throughout the post-World War II era. There is every prospect that these demands will not decrease.

The rapid growth of population, changes in its composition, the rapid advancement of science and technology, and the increased complexity of social organization will all bring increased pressure on state governments for action programs.

In this situation, there is little doubt that every state governor must, in addition to working for improvement in ongoing programs, plan for his state's future.

--There is little doubt that progressive state governments can gain great benefits from efforts to anticipate

their future needs 5 to 10 years ahead by developing and utilizing effective statistical systems and by carrying out special studies.

--Further, progressive state governments can gain great benefits from efforts to project their anticipated revenues from existing tax systems and from possible adjustments in the tax system.

How otherwise can state governments develop practical goals for the state 5 to 10 years into the future which blend need and revenue considerations with feasible economic development goals for the state?

Effective, efficient, fulfillment of these responsibilities will place very heavy demands upon the coverage, accuracy and compatibility of statistical resources in the various geographic subdivisions of the state.

Among the priority problems which will be of critical interest to state decision-makers and which will shape data requirements are these:

1. What are the current figures on state population, employment and income, and what will these be in the future?

2. What will be the magnitude, composition and cost of future state programs?

3. What will be the sources of tax and other revenue available to the state under current systems?

4. What additional new sources of revenue will be available to the state, and what are their potential yields?

5. How can the state most advantageously participate in the broad range of Federal equalization and other grant and assistance programs?

6. How can the state design and administer appropriate programs of equalization and other assistance to its counties, metropolitan areas, and to its lagging regions?

7. What are the state's most feasible routes to maximum economic development?

8. How can the state most effectively manage its water and other resources internally and in cooperation with other states and regional units?

9. How can the state encourage and support the development of education and research?

In planning to deal with these state responsibilities, no state government can escape from two basic concepts which underlie our federal system--a national market and the free flow of interstate commerce. Economists have long recognized that the most important influence on any state is the state of our national economy.

While it is necessary to have facts on the needs and aspirations within states, it is also desirable to have yardsticks and measures which facilitate comparisons between expenditures, levels of effort and accomplishments within a state with those of other states. The search for useful yardstick measures by which to judge the "reasonableness of expenditures" versus need is at least as important as the adoption of formally consistent or compatible definitions for statistical categories.

Two recently completed research efforts deserve the attention of these persons interested in decision-making

and management information systems at the state and local level. One is a pioneering study* by the RAND Corporation, entitled, "A Data Processing System for State and Local Governments." This is an effective and penetrating introduction to the problems of modern data processing and approaches available to progressive state governments.

The other is a study by Dr. Nelson Peach, of the University of Oklahoma and Drs. Richard Poole and James Tarver of Oklahoma State University in association with the Midwest Research Institute. This study moves toward a common methodology for establishing comparable statistics on an interstate basis. It is based on the idea of using counties as building blocks for certain regional analyses. With the use of the county as the basic building block, many regional interests and problems can be analyzed for a complete state, several states or a region within a state. Copies of the Oklahoma study have been made/^{available}to members of this panel.

* E. F. Hearle and R. J. Mason: A Data System for State and Local Governments, Prentice-Hall, Inc., Englewood Cliffs, N.J. (1963).

Important actions have been taken in recent months to give a new momentum to the drive for statistical standardization among the states. For example, in August 1964, the move was endorsed by the National Association of State Budget Officers (NASBO), at their meeting in Atlantic City. In February 1965, representatives of the State Budget Officer group, the Council of State Governments, and the Oklahoma Ad Hoc Committee met with officials from Federal agencies with primary interests in standardization. There was a broad consensus on the desirability of moving ahead, but there was also agreement that much work and high-level support would be necessary.

Two activities now underway or about to begin deserve the special attention of each state governor and of their top professional assistants in the areas of planning, statistical standardization and management information systems.

1. One is the study initiated by Governor Brown of California through a contract with the Lockheed Aircraft

Corporation to study state and local governmental requirements for information and how modern information technology can be applied to meet these requirements.

This study will consider, for inclusion in California's future basic information system, the areas of:

- Health and safety
- Public welfare and services
- Education
- Employment
- Economic conditions
- Social and residential conditions
- Law enforcement
- Administration of justice
- Licensing and regulation

The California--Lockheed study* is of particular interest because it demonstrates the versatility of aerospace companies to attack large-scale technical problems and it demonstrates the applicability of the "system

* A summary of findings will be made available on request to the Governor's office.

engineering" concepts which we have found so useful at NASA.

2. The second effort worthy of special attention by the governors and their top professional associates is a new study of "Advanced Fiscal Budgeting and Economic Development in States and Local Communities" at the George Washington University. The receipt of a substantial grant from the Ford Foundation for a major study to be carried out by economist Dr. Selma Mushkin who has long been active with the Council of State Governments and the Advisory Commission on Intergovernmental Relations has just been announced.

This new study will extend Dr. Mushkin's current study which deals with methods for developing state-by-state projections of revenues by sources, and expenditures by functional category for the year 1970.

The new study is designed to examine both technical and policy aspects of advanced fiscal planning--in the

context of the economic programs of state and local communities--and to generate reports and materials that will encourage and improve such planning by states and localities.

Another new activity which merits special attention is the creation by the Council of State Governments of an Ad Hoc Committee on Automation, Technology and Data Processing to study the impact of technological and scientific developments on government. Among its functions are to develop ways and means to facilitate interstate exchange of information on automatic data processing (ADP) equipment, to represent the Council on the Committee of the American Standards Association's ADP Committee, to determine what role it should play in seeking support from the federal government or foundations for research projects on ADP, and to consider what should be done with respect to federal-state-local relationships in ADP.

In short, many important changes are occurring which will help state and local governments in the areas of

sophisticated use of advanced new information technology and administrative management.

Those states which do not take steps to keep up in this field will soon be left behind as the more progressive states forge ahead.

Plan of Action

It is clear that the goals of complete uniformity, perfect comparability and total integration of statistical and management information systems will not soon be accomplished. But it is equally clear that urgent efforts toward these goals are being made and are necessary if state and local governments are to keep pace with the needs of modern society.

While there are no quick and easy solutions, there are important next steps which deserve your personal attention.

1. Establish a state statistical standards unit.

This step is necessary to create an appropriate administrative framework both for consolidation and standardization

within the state and for comparability among the states. The placement of this unit will vary from state to state, but it must report to a high officer to be effective. New York State took this step with the establishment in September 1964 of a Director of Statistical Coordination reporting to an Assistant Director of the Division of the Budget. Other states are moving rapidly to take this type of action.

2. Sponsor a National Conference on the Comparability of Statistics Among the States. This step is desirable to provide a means by which the state statistical standards units recommended above can find the commonality of interest among states before they take final positions on the approach within their respective states. It has been suggested that the Advisory Commission on Intergovernmental Relations or the Council of State Governments take the initiative in convening such a conference and in fostering cooperation by appropriate bodies at the federal, state and local levels.

It seems probable that rather than take on the entire problem directly and in its total complexity, functional specialities such as personal income statistics by county, education statistics, highway statistics, etc., could be set up and these integrated as quickly as possible. It is possible also that groups of states can convene regional conferences to discuss special regional problems.

3. Examine the applicability of modern information technology at the state and local levels. Many have found that the introduction of computers should generally not be considered simply as a means of carrying out existing procedures within existing organizations. Some institutional changes are almost always required to realize the full power of the new data systems. As state studies proceed as rapidly as possible, concurrent effort should also be made to utilize the experience and research results of other states and the federal government. In this connection, the coordination activities of the Council of State Governments' Ad Hoc Committee on Automation, Technology

- 25 -

and Data Processing and the U.S. Budget Bureau's ADP group can prove most helpful.

In closing, let me emphasize again that the timely availability of accurate, comprehensive data--based on valid and accepted concepts and definitions--will become increasingly important to the effective conduct of state government. The need for compatibility between federal and state data systems is recognized at the top levels of government, including such officials as Governor Bellmon and the Director of the Bureau of the Budget. I believe it must be recognized and acted upon by every state which hopes to meet the needs and aspirations of its citizens.

Governor Henry Bellmon and your panel deserve high praise for highlighting this problem and bringing a positive action program before you.

Thank you for your attention.

#